

HARTZELL PROPELLER INC.
SERVICE LETTER
Transmittal Sheet
HC-SL-61-277

Governor - Installation of Hartzell Propeller Inc. Governors

September 16, 2020

This page transmits a revision to Service Letter HC-SL-61-277.

- Original Issue, dated Nov 05/08
- Revision 1, dated Aug 06/09
- Revision 2, dated Oct 01/15
- Revision 3, dated Jan 08/16
- Revision 4, dated Oct 03/16
- Revision 5, dated Feb 01/17
- Revision 6, dated Sep 16/20

Changes are shown by a change bar in the left margin of the revised pages.

Revision 6 is issued to change the following in the Service Letter:

- Revised the installation instructions in the Accomplishment Instructions section (S-1-90 governor models are supplied with a B-3873-7 bolt to connect the control cable to the governor control arm).

This Service Letter is reissued in its entirety.

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1. Planning Information

A. Effectivity

- (1) All Hartzell Propeller Inc. governors are affected by this Service Letter.

WARNING: DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF THIS SERVICE LETTER. INFORMATION CONTAINED IN THIS SERVICE LETTER MAY BE SIGNIFICANTLY CHANGED FROM EARLIER REVISIONS. FAILURE TO COMPLY WITH THIS SERVICE LETTER OR THE USE OF OBSOLETE INFORMATION MAY CREATE AN UNSAFE CONDITION THAT MAY RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR SUBSTANTIAL PROPERTY DAMAGE. REFER TO THE SERVICE LETTER INDEX FOR THE MOST RECENT REVISION LEVEL OF THIS SERVICE LETTER.

B. Concurrent Requirements

- (1) Additional service documents may apply to the components/propellers affected by this Service Letter. Compliance with additional service documents may be necessary in conjunction with the completion of the Accomplishment Instructions in this Service Letter. Refer to the Hartzell Propeller Inc. website at www.hartzellprop.com for a cross-reference of service documents.

C. Reason

- (1) This Service Letter provides installation information for governors manufactured by Hartzell Propeller Inc.

D. Description

- (1) This Service Letter provides Additional Maintenance Information (AMI).
- (2) This Service Letter provides general installation instructions for Hartzell Propeller Inc. governors if airframe manuals or other installation information is not available.
- (3) These instructions may be used in conjunction with installation information supplied by the airframe manufacturer, or used as general installation guidelines when governor installation information is not provided by the airframe manufacturer.
- (4) Information provided by the airframe or engine manufacturer supersedes information provided in this Service Letter.

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E. Compliance

- (1) Compliance with this Service Letter is optional.

F. Approval

- (1) This technical document is approved by Hartzell Propeller Inc.

G. Manpower

- (1) Manpower will be variable, depending upon the location of the governor pad on the engine, cowling removal, linkage connections, etc.

H. Weight and Balance

- (1) Governor weight will vary depending upon design. If necessary, weigh the governor before installation.

CAUTION: DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF A DOCUMENT.

I. References

- (1) Pilot's Operating Handbook (POH).
- (2) Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02) - (Volume 7, Consumable Materials and Packaging and Storage is available on the Hartzell Propeller Inc. website at www.hartzellprop.com)

2. Material Information

A. Material Necessary for Each Propeller/Component

<u>Part Number</u>	<u>Description</u>	<u>Used on</u>
B-1104-1	Gasket, Governor	Hartzell Propeller Inc. A-1 series governors only
B-1104	Gasket, Governor	All other Hartzell Propeller Inc. governors

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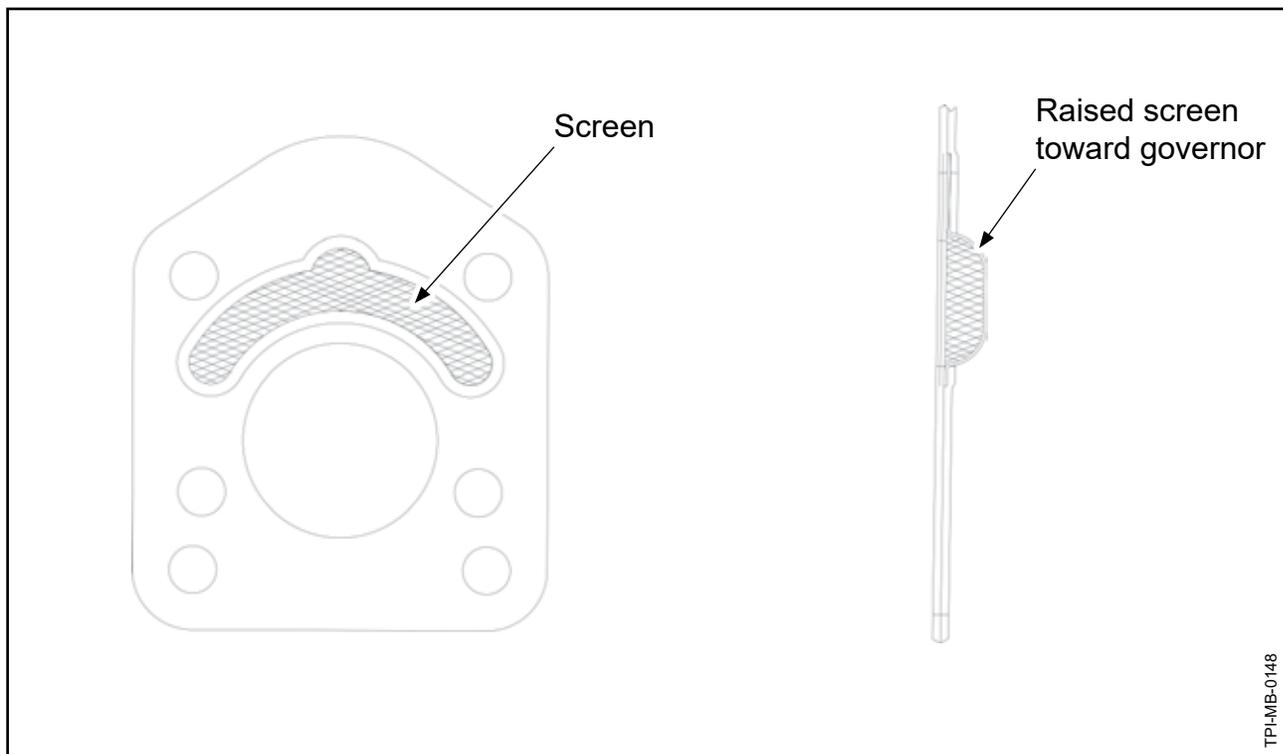
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B. Consumable Materials

<u>CM Number</u>	<u>Description</u>	<u>Qty</u>
CM23	Stoddard Solvent	AR
CM11	Acetone or Denatured Alcohol	AR
CM116	Threadlocker, Removable	AR
CM288	Methyl Ethyl Ketone (MEK)	AR
CM219	Methyl Propyl Ketone (MPK)	AR
-	Dow Corning® 7 Release Compound	AR

NOTE: All CM numbers or materials in this Service Letter refer to the Consumable Materials chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).



Governor Gasket
Figure 1

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3. Accomplishment Instructions

A. Installation

WARNING: DURING GOVERNOR INSTALLATION, AIRFRAME AND ENGINE MANUFACTURER'S MANUALS AND PROCEDURES MUST BE FOLLOWED, BECAUSE THEY MAY CONTAIN INSTRUCTIONS VITAL TO AIRCRAFT SAFETY THAT ARE NOT CONTAINED IN THIS SERVICE LETTER.

CAUTION: APPLICATION OF RELEASE COMPOUND PERMITS EASIER REMOVAL OF THE GASKET WHEN THE GOVERNOR IS REMOVED, BUT CAN CONTRIBUTE TO LEAKING AT THE GASKET. USE RELEASE COMPOUND SPARINGLY.

- (1) If desired, apply a coating of Dow Corning® 7 release compound or equivalent to the new mounting gasket.
- (2) Make sure that the correct studs are installed on the engine governor mounting pad in accordance with the engine or airframe manual.
 - (a) The studs must be of sufficient length to permit at least one thread to be visible above each mounting nut after the governor is installed.
 - (b) Replacement of the governor mountings studs may be required if the governor mounting studs do not extend sufficiently through the governor attachment nut when installing a Hartzell governor.
 - 1 Lycoming P/N 31C-16 mounting stud is one example of a longer mounting stud.
- (3) Using a solvent listed in Paragraph 2.B., clean the engine governor mounting pad, the governor mounting surface, and the studs.
- (4) With the raised screen on the mounting gasket facing the governor, put the mounting gasket over the studs on the engine governor mounting pad. Refer to Figure 1.
- (5) Put the governor on the mounting studs.
 - (a) If necessary, rotate the governor drive shaft or the engine crankshaft to align the splines on the governor shaft with the engine drive gear.

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CAUTION 1: USE ADEQUATE PRECAUTIONS TO PROTECT THE GOVERNOR ASSEMBLY FROM DAMAGE WHEN IT IS INSTALLED ON THE AIRCRAFT ENGINE. DO NOT GOUGE OR PUT PRESSURE AGAINST THE GOVERNOR BODY WHEN INSTALLING OR REMOVING THE NUTS.

CAUTION 2: FOR E, U, V, AND S SERIES GOVERNORS, USE CAUTION WHEN USING AN OPEN END WRENCH TO TIGHTEN THE MOUNTING NUTS. THE WRENCH CAN GET CAUGHT BETWEEN THE MOUNTING NUT AND GOVERNOR BODY WALL, CAUSING THE WALL OF THE GOVERNOR BODY TO CRACK AND LEAK.

- (6) Install the correct washers and nuts on the mounting studs in accordance with the engine or airframe manual.
- (7) Torque the nuts to 18-20 ft-lbs (24.5-27.1 N•m) unless otherwise indicated in the engine or airframe manual.
- (8) Connect the propeller push/pull control cable to the governor control arm (S-1-90 governors: Use the supplied B-3873-7 bolt to connect the control cable).
 - (a) A governor control arm may have more than one hole for connecting the push/pull control. Use the hole specified in the airframe manual. If no hole is specified, use the hole that permits the control arm to move throughout the full range of movement with the least restriction.

B. Operational Checks - Ground Operation

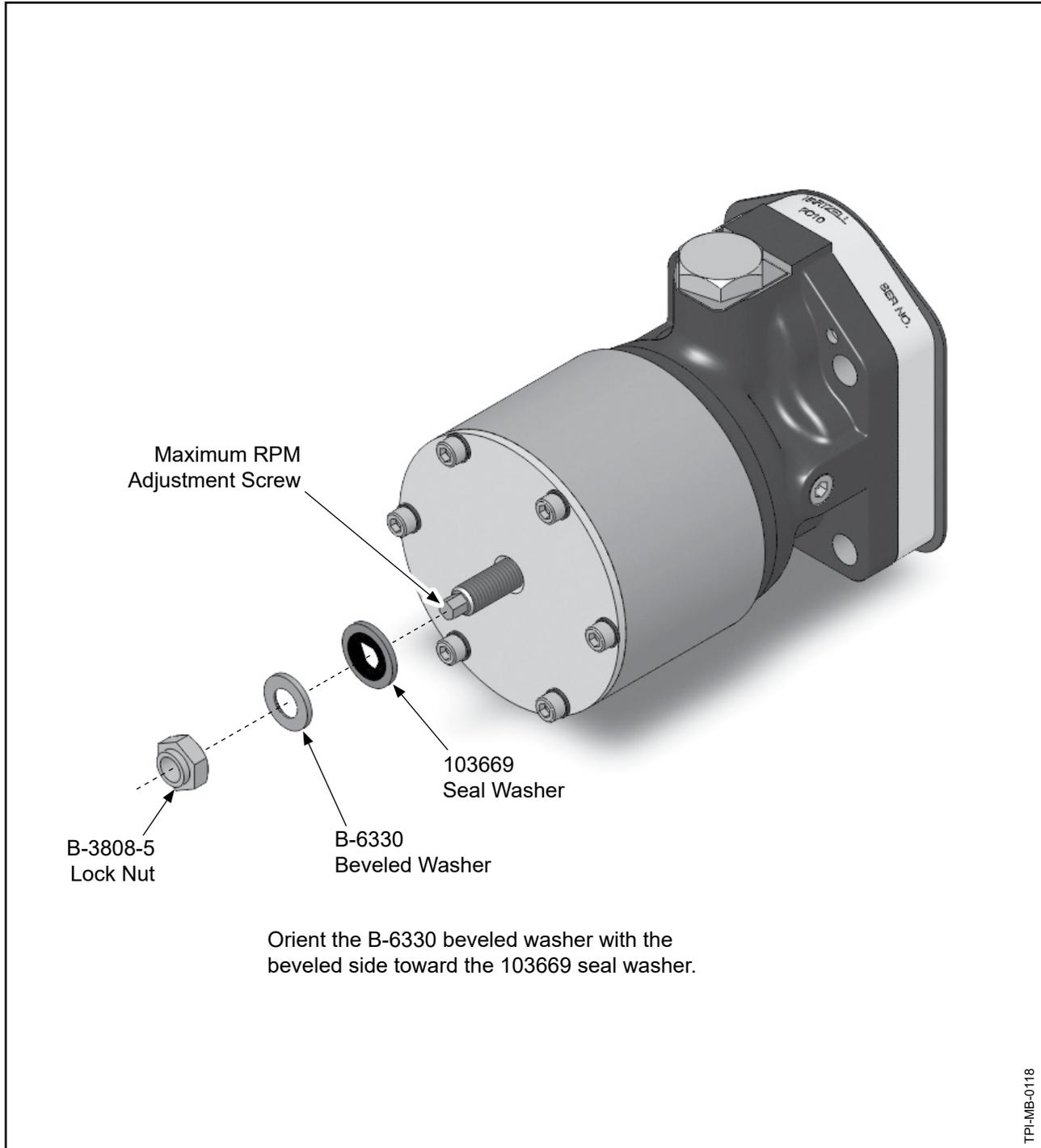
- (1) Variable RPM Governors
 - (a) Cycle the propeller control throughout its operating range from low to high, or as directed by the Pilot's Operating Handbook (POH).
 - (b) Repeat the step in paragraph 3.B.(1)(a) at least three times to purge air from the propeller hydraulic system and to introduce warmed oil to the cylinder.

NOTE: Pitch change response on the first operation from low to high blade pitch may be slow, but should speed up on the second and third cycles.
 - (c) Make sure of correct operation from low pitch to high pitch and throughout the operating range.
 - (d) Perform the static RPM check in accordance with the applicable Propeller Owner's Manual.
 - (e) Shut down the engine in accordance with the POH.
 - (f) Make adjustments as necessary in accordance with the POH.

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RPM Adjustment Components for Fixed RPM Governors
Figure 2

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(2) Fixed RPM Governors

(a) Perform the static RPM check in accordance with the applicable Propeller Owner's Manual.

1 If RPM adjustment of the governor is necessary, shut down the engine in accordance with the POH and adjust the maximum RPM adjustment screw on the governor. Refer to Figure 2.

a Loosen the B-3808-5 lock nut on the maximum RPM adjustment screw.

b Turn the maximum RPM adjustment screw clockwise to increase engine RPM, counter-clockwise to decrease engine RPM.

NOTE: One quarter turn of the maximum RPM adjustment screw will change engine speed approximately 30 RPM.

CAUTION: OVERTIGHTENING THE B-3808-5 LOCK NUT MAY DAMAGE THE 103669 SEAL WASHER, RESULTING IN AN OIL LEAK.

c Torque the B-3808-5 lock nut to 96-132 In-Lb (10.9-14.9 N•m). Refer to Figure 2.

(b) Perform the static RPM check in accordance with the applicable Propeller Owner's Manual.

(c) Shut down the engine in accordance with the POH.

(d) Make adjustments as necessary in accordance with the POH.

(e) Examine the governor for oil leaking at the maximum RPM adjustment screw. Refer to Figure 2.

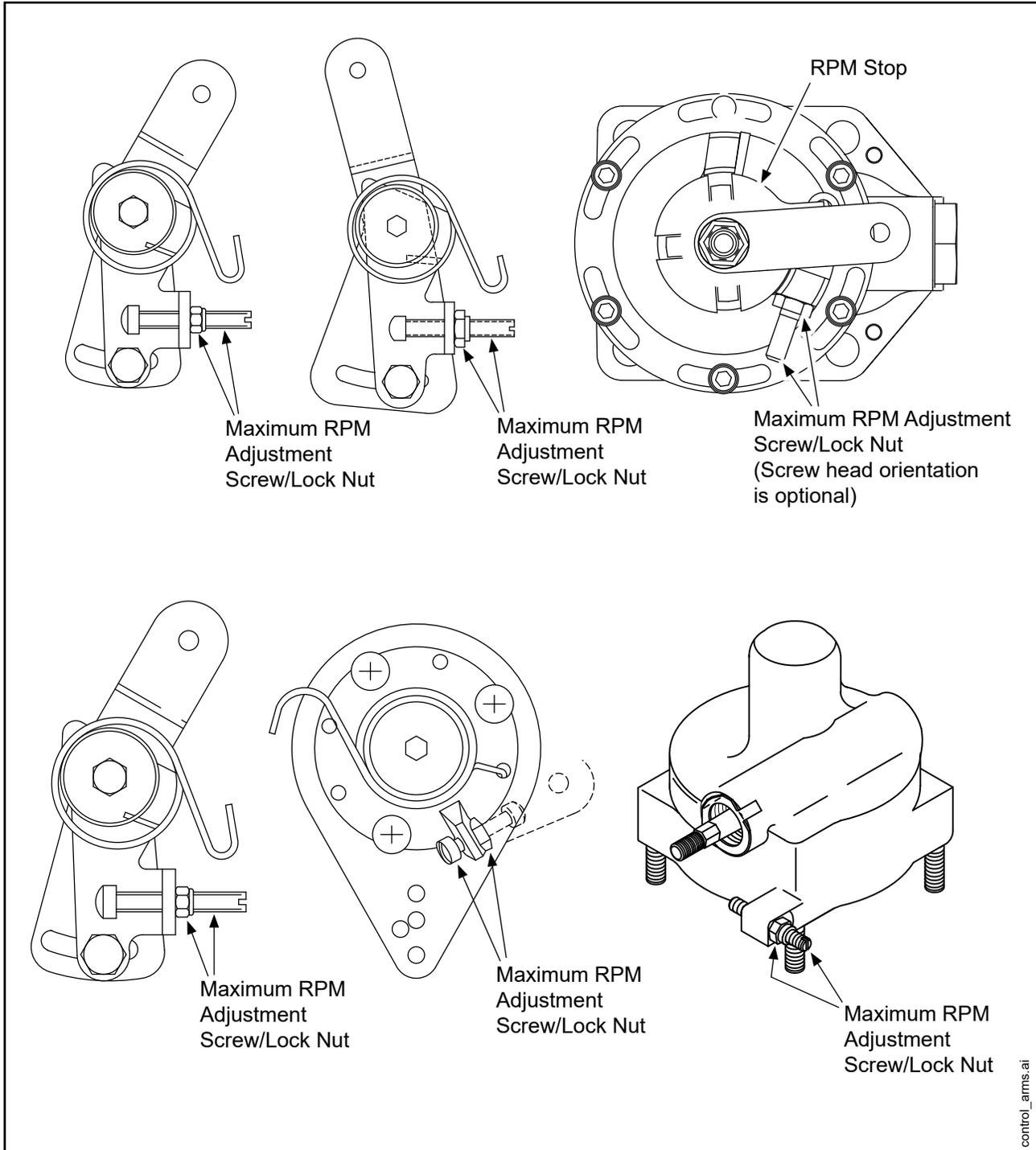
1 If an oil leak is detected, check the B-3808-5 lock nut for proper torque.

2 If the oil leak continues, replace the 103669 seal washer.

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Maximum RPM Adjust Screw/Lock Nut Locations (Variable RPM Governors Only)

Figure 3

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C. Operational Checks - In-Flight

(1) Variable RPM Governors

CAUTION: DO NOT PERMIT THE PROPELLER TO OVERSPEED DURING THESE OPERATIONAL CHECKS. SIGNIFICANT DAMAGE TO THE ENGINE AND/OR PROPELLER MAY RESULT.

- (a) Make a record of the maximum propeller RPM during takeoff acceleration.
- (b) Climb to a safe altitude and level out the aircraft.
- (c) Leave the propeller control in the maximum RPM position.
- (d) Monitor the propeller RPM for 3 to 5 minutes.
 - 1 If the propeller exceeds the maximum RPM:
 - a Using the propeller control lever, reduce the propeller RPM to achieve the desired maximum RPM.
 - b Leave the propeller control in the newly adjusted maximum RPM position.
 - c Land the aircraft and shut down the engine.
 - d Remove the aircraft cowling to access the governor.
 - e Adjust the maximum RPM screw so that the screw just touches the governor control arm stop. Refer to Figure 3.
 - f Torque the lock nut to 30-36 In-Lb (3.4-4.0 N•m).
 - g Perform an in-flight check to confirm the correct settings.

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- 2 If the propeller RPM is below maximum RPM:
 - a Make a record of the maximum propeller RPM and land the aircraft.
 - b Remove the aircraft cowling to access the governor.
 - c Turn the maximum RPM screw counter-clockwise to increase RPM or clockwise to decrease RPM as desired.
Refer to Figure 3.
 - (1) Turn the maximum RPM screw 3 to 4 turns counter-clockwise to increase the maximum RPM approximately 100 RPM.
 - (2) Turn the maximum RPM screw 3 to 4 turns clockwise to decrease the maximum RPM approximately 100 RPM.
 - d Torque the lock nut to 30-36 In-Lb (3.4-4.0 N•m).
 - e Determine maximum RPM change relative to the adjustment of the maximum RPM screw.
 - f Perform an in-flight check to confirm if the correct maximum RPM has been obtained.

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(2) Fixed RPM Governors

CAUTION: DO NOT PERMIT THE PROPELLER TO OVERSPEED DURING THESE OPERATIONAL CHECKS. SIGNIFICANT DAMAGE TO THE ENGINE AND/OR PROPELLER MAY RESULT.

- (a) Make a record of the maximum propeller RPM during takeoff acceleration.
- (b) Climb to a safe altitude and level out the aircraft.
- (c) Monitor the propeller RPM for 3 to 5 minutes.
- (d) If RPM adjustment is necessary:
 - 1 Land the aircraft and shut down the engine in accordance with the POH.
 - 2 Loosen the B-3808-5 lock nut on the maximum RPM adjustment screw. Refer to Figure 2.
 - 3 Turn the maximum RPM adjustment screw clockwise to increase engine RPM, counter-clockwise to decrease engine RPM. Refer to Figure 2.

NOTE: One quarter turn of the maximum RPM adjustment screw will change engine speed approximately 30 RPM.

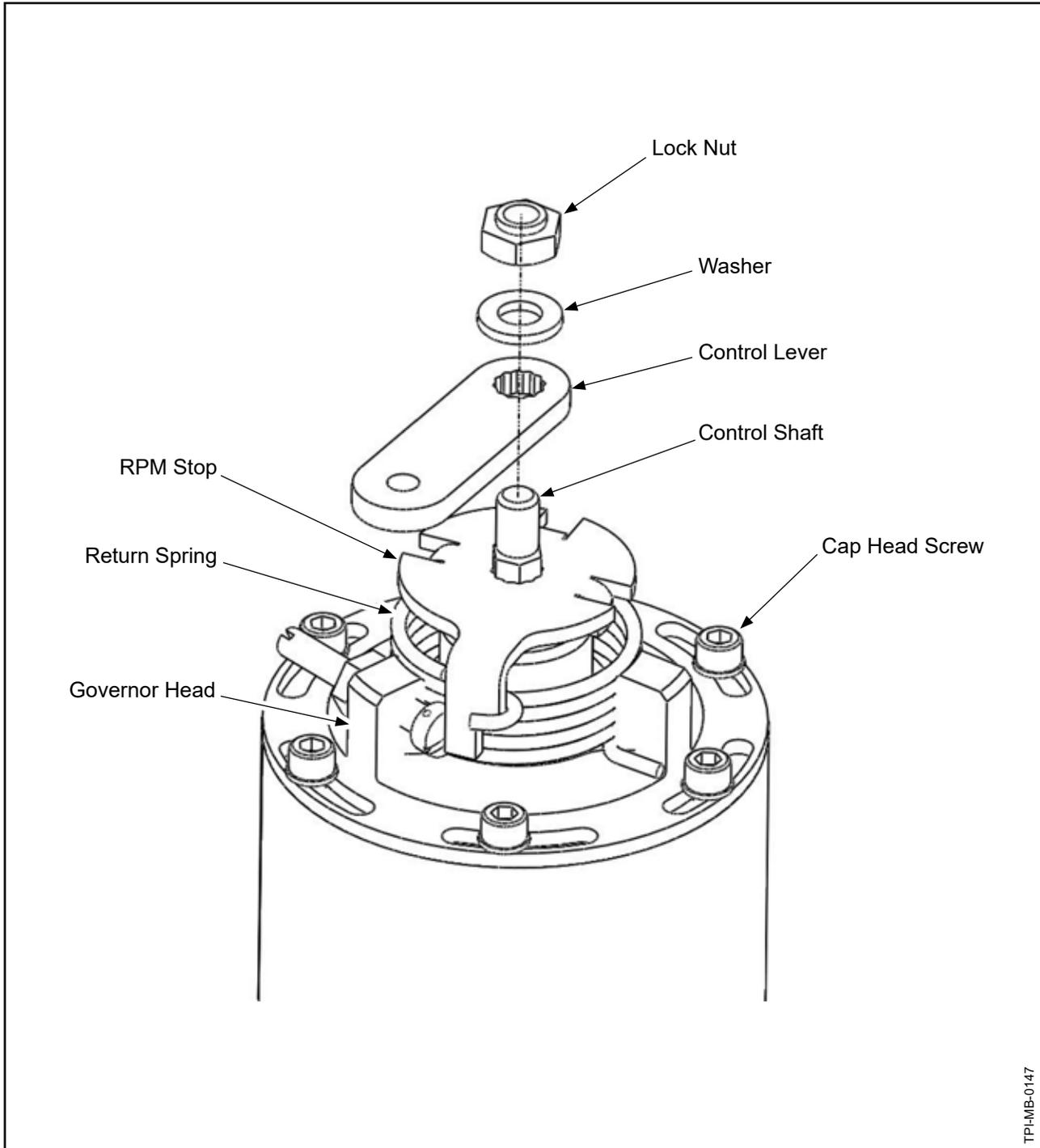
CAUTION: OVERTIGHTENING THE B-3808-5 LOCK NUT MAY DAMAGE THE 103669 SEAL WASHER, RESULTING IN AN OIL LEAK.

- 4 Torque the B-3808-5 lock nut to 96-132 In-Lb (10.9-14.9 N•m). Refer to Figure 2.
- (e) Determine the maximum RPM change relative to the adjustment of the maximum RPM adjustment screw.
- (f) Perform an in-flight check to verify proper adjustment of the maximum RPM.
- (g) Examine the governor for oil leaking at the maximum RPM adjustment screw. Refer to Figure 2.
 - 1 If an oil leak is detected, check the B-3808-5 lock nut for proper torque.
 - 2 If the oil leak continues, replace the 103669 seal washer.

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**Control Lever Adjustment
Figure 4**

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D. Control Lever Adjustment

(1) S-1 and S-4 Series Governors with Top Mounted Control Levers

(a) Coarse Adjustment of the Control Lever - Refer to Figure 4

1 Remove the lock nut and washer.

CAUTION: DO NOT REMOVE THE RPM STOP OR THE RETURN SPRING. IF THE RPM STOP OR THE RETURN SPRING ARE REMOVED, THE GOVERNOR MUST BE RETURNED TO HARTZELL PROPELLER INC. OR A SERVICE FACILITY AUTHORIZED TO REPAIR MECHANICALLY ACTUATED GOVERNORS TO VERIFY THE RPM SETTING.

2 Remove the control lever from the control shaft.

3 Install the control lever on the control shaft in the desired position.

a The control lever can be turned over for an additional 15 degrees of coarse adjustment.

4 Install the washer and the lock nut.

a Torque the lock nut to 72-96 In-Lbs (8.2-10.8 N•m).

(b) Fine Adjustment of the Control Lever - Refer to Figure 4

1 For Governors Without Safety Wire on the Cap Head Screws:

a Loosen, but do not remove the six cap head screws that attach the governor head.

b Rotate the governor head until the control lever is at the desired angle.

c Remove one cap head screw from the governor head.

d Clean the cap head screw to remove any dried locking compound.

e Apply threadlocking adhesive CM116 to the threads of the cap head screw.

f Install the cap head screw into the governor head.

g Torque the cap head screw to 21-25 In-Lbs (2.4-2.8 N•m).

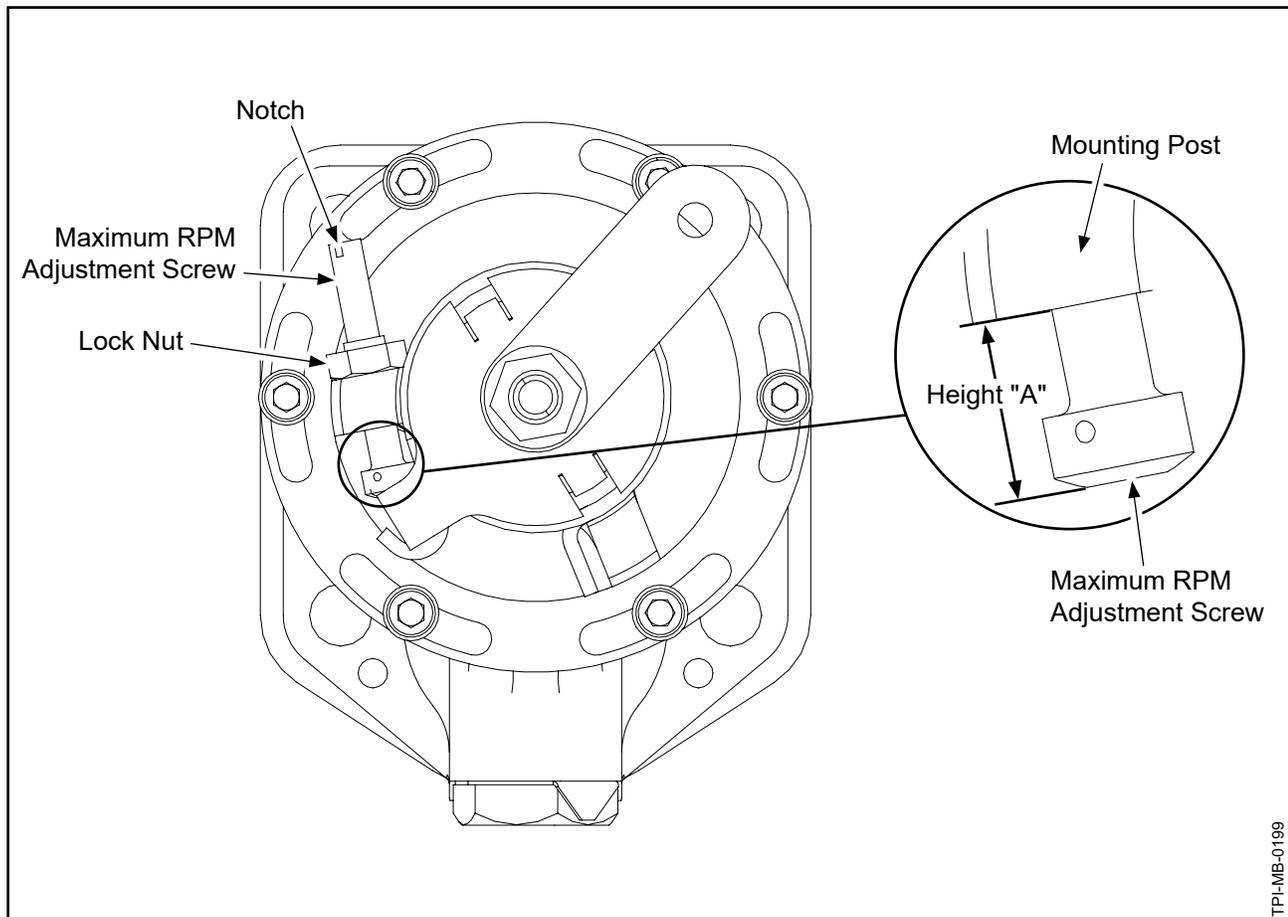
h Repeat steps 3.D.(1)(b)1 c through 3.D.(1)(b)1 g for the five remaining cap head screws.

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- (c) For Governors With Safety Wire on the Cap Head Screws:
- 1 Remove the safety wire from the six cap head screws that attach the governor head.
 - 2 Loosen, but do not remove the six cap head screws.
 - 3 Rotate the governor head until the control lever is at the desired angle.
 - 4 Torque the six cap head screws to 21-25 In-Lbs (2.4-2.8 N•m).
 - 5 Safety wire the six cap head screws in accordance with NASM 33540.



Maximum RPM Adjustment Screw Head Orientation
Figure 5

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E. Maximum RPM Adjustment Screw Head Orientation

(1) Variable RPM S-1 Series Governors Only

NOTE: Maximum RPM adjustment screws that do not have a slot in the threaded portion of the screw can be installed with the head on either side of the mounting post. Refer to Figure 5.

(a) Measure the height "A" of the maximum RPM adjustment screw that touches the RPM stop. Refer to Figure 5.

1 Make a record of the height measurement.

(b) Remove the lock nut and the maximum RPM adjustment screw.

(c) Install the maximum RPM adjustment screw head in the desired orientation to the height recorded in step 3.E.(1)(a).

(d) Install the lock nut on the opposite side of the maximum RPM adjustment screw head.

1 Torque the lock nut to 30-36 In-Lbs (3.4-4.0 N•m).

F. Contact Information

Hartzell Propeller Inc.
Attn.: Hartzell Propeller Inc. Product Support
One Propeller Place
Piqua, Ohio 45356-2634 USA
Phone: (001) 937.778.4379
Fax: (001) 937.778.4215
E-mail: techsupport@hartzellprop.com

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